

**Proposed Edits and Additions related to
Criteria for Evaluating Instructional Materials Category One Criterion Number 16**

Submitted by
Gerald A. Lieberman, Ph.D.
Director
State Education and Environment Roundtable
gerald@seer.org

Supported by CalRecycle
As Indicated in the Submission from
Bryan Ehlers
CalRecycle Office of Education and the Environment

Table of Contents

Chapter 1: Introduction to the Framework	1
Chapter 2: Goals and Curriculum Strands	4
Chapter 3: Course Descriptions for Kindergarten Through Grade Five	5
Kindergarten Course Descriptions	5
1st-Grade Course Descriptions	6
2nd-Grade Course Descriptions	7
3rd-Grade Course Descriptions	8
4th-Grade Course Descriptions	9
5th-Grade Course Descriptions	11
Chapter 4: Course Descriptions for Grades Six Through Eight	12
6th-Grade Course Descriptions	12
7th-Grade Course Descriptions	14
8th-Grade Course Descriptions	16
Chapter 5: Course Descriptions for Grades Nine Through Twelve	18
10th-Grade Course Descriptions	18
11th-Grade Course Descriptions	20
12th-Grade Course Descriptions Principles of American Democracy	21
12th-Grade Course Descriptions Economics	22
Chapter 8: Instructional Strategies and Professional Development in History–Social Science ..	23
Chapter 9—Criteria for Evaluating Instructional Materials: K-8	24
Appendix D	25

**Proposed Edits and Additions related to
Criteria for Evaluating Instructional Materials Category One Criterion Number 16¹**

Submitted by
Gerald A. Lieberman, Ph.D.
State Education and Environment Roundtable
gerald@seer.org

Supported by CalRecycle
As Indicated in the Submission from
Bryan Ehlers
CalRecycle Office of Education and the Environment

Chapter 1: Introduction to the Framework

Issue of Concern: Chapter 1: Introduction to the Framework

The second paragraph on page 1 should be expanded to mention the environment.

Proposed Resolutions:

Line 17, current text second paragraph: “As educators in the field of history–social science, we want our students to perceive the complexity of social, economic, and political problems.”

Replace with: “As educators in the field of history–social science, we want our students to perceive the complexity of social, economic, **environmental**, and political problems.

Chapter 1: Introduction to the Framework

Issue of Concern: Chapter 1: Introduction to the Framework

Does not make any reference to the State Board of Education adopted Environmental Principles and Concepts that are required under Criterion Number 16 of the Criteria for Evaluating Instructional Materials, “Materials include instructional content based upon the Environmental Principles and Concepts developed by the California Environmental Protection Agency and adopted by the State Board of Education (Public Resources Code Section 71301) where appropriate and aligned to the history–social science content standards.”

Proposed Resolution:

After line 364, add the following text to the end of the Introduction. (Please note: The material below has been included in the Introduction in the draft Science Framework (with the exception of the paragraph that is the third from the end and has been adapted to the HSS standards.)

California’s Environmental Principles and Concepts

The adoption of California’s *Environmental Principles and Concepts (EP&Cs)* provides the basis for building students’ understanding of the dependence of human lives, communities, and societies on the health and functioning of Earth’s natural systems. Studies of history and social sciences provide many direct connections that can help students recognize this dependence as well as building an understanding that human decisions and actions can significantly influence the health and functioning of terrestrial, freshwater, coastal, and marine ecosystems. Fourth grade, for example, provides rich opportunities for students to learn about these connections through studies of California’s natural regions and resources; transition from a hunter-gatherer economy to an agricultural economy; California Indians; Spanish exploration and settlement; the Gold Rush; the state’s transition to an agricultural economy; and water

¹ “16. Instructional materials, where appropriate, examine humanity’s place in ecological systems and the necessity for the protection of the environment (*Education Code* Section 60041). Materials include instructional content based upon the Environmental Principles and Concepts developed by the California Environmental Protection Agency and adopted by the State Board of Education (*Public Resources Code* Section 71301) where appropriate and aligned to the history–social science content standards.”

resources. (Appendix D identifies curriculum units that show how History-Social Sciences standards can be effectively taught in conjunction with California's EP&Cs.)

In 2003, the California Education and the Environment Initiative (EEI), Assembly Bill 1548, was passed by California's legislature and signed into law by the governor. This law amended Public Resources Code Section 71300-71305 and called upon state agencies, including the State Board of Education, California Department of Education, and Natural Resources Agency to work with the California Environmental Protection Agency and Integrated Waste Management Board to implement several activities intended to increase the environmental literacy of students throughout the state's K–12 education system.

The first action, identification of key environmental content, resulted in the development and adoption of the EP&Cs in 2004. The law conceived of these principles and concepts as representing "big ideas" about the environment—critical understandings that every student in the state should have. The focus of the EP&Cs is the interactions and interdependence of human societies and natural systems. California's five adopted Environmental Principles² include:

- | | |
|----------------------|--|
| Principle I | People Depend on Natural Systems
The continuation and health of individual human lives and of human communities and societies depend on the health of the natural systems that provide essential goods and ecosystem services. |
| Principle II | People Influence Natural Systems
The long-term functioning and health of terrestrial, freshwater, coastal and marine ecosystems are influenced by their relationships with human societies. |
| Principle III | Natural Systems Change in Ways that People Benefit from and Can Influence
Natural systems proceed through cycles that humans depend upon, benefit from and can alter. |
| Principle IV | There are no Permanent or Impermeable Boundaries that Prevent Matter from Flowing Between Systems
The exchange of matter between natural systems and human societies affects the long-term functioning of both. |
| Principle V | Decisions Affecting Resources and Natural Systems are Complex and Involve Many Factors
Decisions affecting resources and natural systems are based on a wide range of considerations and decision-making processes. |

In addition to requiring the development of the EP&Cs, the legislation called for the creation of a model curriculum designed to teach the principles and concepts to California's K–12 students. In 2010, California's State Board of Education unanimously approved the EEI curriculum for use by teachers and students across the state. The EEI curriculum included 45 units driven by the history-social science standards adopted in 1998 and 40 units based on the California science content standards.

The design of the EEI curriculum was intended to:

- help students achieve proficiency with selected California content standards;
- teach K–12 students the key understandings represented by California's Environmental Principles and Concepts as a means of preparing them to understand and overcome future environmental challenges;
- support students as they develop and apply: science investigation and experimentation skills; history-social science analysis skills; English-language arts reading, writing, listening, and speaking skills; and mathematics skills; and,
- integrate well with textbooks and other instructional materials adopted by California's State Board of Education.

Across the grade levels, because of their connections to many of the history-social science standards, the EP&Cs serve to deepen students' knowledge and preparation for achieving mastery of the standards. Principal I, for example, relates directly to fourth-grade standard 4.2.1. "Discuss the major nations of California Indians, including their geographic distribution, economic activities, legends, and

² The complete listing of California's EP&C's, including the detailed concepts, is provided in Appendix XXX.

religious beliefs; and describe how they depended on, adapted to, and modified the physical environment by cultivation of land and use of sea resources.” While Principal V represents a strong connection to twelfth-grade economics standard 12.3.1. “Understand how the role of government in a market economy often includes providing for national defense, addressing environmental concerns, defining and enforcing property rights, attempting to make markets more competitive, and protecting consumers’ rights.”

The EEI curriculum was intentionally designed to be California-centric to make the learning more relevant and engaging for California students. The instructional units provide students with opportunities to investigate the numerous environmental challenges that are important to California, for example, the elimination of over 90% of coastal wetlands, loss of biological diversity, and salinization in the San Joaquin Valley.

Appendix XXX (to be developed) provides an in-depth look into the interconnectedness of the EP&Cs and CA NGSS. It demonstrates how the goals of teaching the EP&Cs can be successfully achieved in concert with instruction designed to implement the CA History-Social Science Standards.

Chapter 2: Goals and Curriculum Strands

Issues of Concern: title of subsection “Understand human and environmental interaction,” and other text as indicated below does not effectively convey the key ideas within the State Board of Education adopted Environmental Principles and Concepts.

Proposed Resolutions:

Line 209 current title: “Understand human and environmental interaction.”

Replace with: “ Understand how humans depend on and influence the environment.”

Line 211 text: “environments interact in”

Replace with: “environments interact and”

Line 218 text: “Natural resources gain value only through human need, and human need changes over time.”

Replace with: “Historically, human societies have valued natural systems according to the economic worth of their resources and services; however, our understanding of natural systems and our perceptions of the world have changed over time. Increasingly, human societies value natural systems for their intrinsic worth, in addition to their economic value.”

(Please note: this statement is supported by the work of many researchers including: Soulé 1985, Rolston 1986, and Callicott 1989, and numerous others working in the field of environmental history.)

Line 219 text reads: “Students should develop understanding of the major environmental issues confronting modern societies and of the consequences, intentional and unintentional, of human decisions that affect the environment.”

Replace with: “Students should learn about the major environmental issues confronting modern societies and of the consequences, intentional and unintentional, of human decisions and activities because they can cause major impacts to the functioning of Earth’s natural systems.”

Line 222 text reads: “Study of the Environmental Principles and Concepts...”

Replace with: “Study of history-social sciences through the lens of the Environmental Principles and Concepts...”

Chapter 3: Course Descriptions for Kindergarten Through Grade Five

Issues of Concern: the course description in Chapter 3 has very limited information about how teachers would integrate the Environmental Principles and Concepts with standard-specific content.

Proposed Resolutions:

The items below are the proposed additions associated to the Environmental Principles and Concepts and the EEI curriculum.

Kindergarten Course Descriptions

After Line 269 add the following new paragraph:

Exploring the environment surrounding the school today and discussing how it is different from what it was when the school was built, focuses students on the fact that people in earlier times used many of the same goods and ecosystem services as we do today, such as lumber, water, and food. They discover that in earlier times people more directly consumed the goods and ecosystem services from natural systems rather than obtaining them from sources like grocery stores, and lumberyards (California Environmental Principle I). Students develop an understanding that population growth leads to increased consumption of goods (for example, water and energy) and changes in the surrounding environment (California Environmental Principle II). Student reflection on management and use of natural resources on their campus provides them a picture of the way resource use has changed over time. (See Appendix D EEI Curriculum Unit *Some Things Change and Some Things Stay the Same* K.4.5.-K.6.3.)

1st-Grade Course Descriptions

After Line 398 add the following new paragraph:

Studying a map of California and discussing places where people live leads students to analyze how location, weather, and the physical environment affect where and why people settle in an area. As they explore places where Californians live students focus on the fact that human communities are generally located in close proximity to the natural systems (for example, forests, farmland, bodies of water) that provide the goods and ecosystem services upon which humans depend (California Environmental Principle I). Investigating naturally-occurring events (earthquakes and floods) and human activities (logging and farming) students develop an understanding that both types of events can change natural systems. Student reflection on direct and indirect changes to natural systems due to the increase of human populations and their consumption rates, and the expansion and operation of human communities builds students' understanding of the influence of these activities on the geographic extent and viability of natural systems (California Environmental Principle II (See Appendix D EEI Curriculum Unit *People and Places: Then and Now* 1.2.4.))

After Line 430 add the following new paragraph:

Comparing the different types of transportation (horses, wagons, cars, trucks, planes, boats and trains) used in the past and in the present day, students recognize that ecosystem goods and ecosystem services provided by natural systems have always played an essential role in supporting different forms and systems of transportation and related infrastructure, such as roads, tracks, and gas stations (California Principle I). Exploring the types of energy used to fuel vehicles, students learn the differences between the types and sources of energy used in the past and today. Student reflection on the changes in transportation systems and the ability to travel greater distances builds their understanding of how these changes have affected the growth and expansion of communities, and, strengthens their understanding of our dependence on healthy natural systems. (See Appendix D EEI Curriculum Unit *On the Move* 1.4.2.)

2nd-Grade Course Descriptions

After Line 592 add the following new paragraph:

Comparing Sacramento in 1900 to Sacramento in 2000 introduces students to the fact that land use patterns in an area change over time. Studying a map and locating where they live, students learn that California is a state with varied ecosystems including mountains, deserts, forest, fields, oceans and coasts that provide the resources for a wide variety of land uses. Examining changes in population growth between 1850 and 2000 students learn that there was a shift in where people lived resulting in the expansion of urban, suburban, and rural communities in what were once unsettled areas. Student reflection on the ways humans use land for agriculture, housing, transportation, and recreation and that these uses change over time based on the population and its needs, leads students to understand that that the expansion and operation of human communities influences the geographic extent, composition, biological diversity, and viability of natural systems (California Environmental Principle II). (See Appendix D EEI Curriculum Unit *California's Lands: Then and Now* 2.2.4.)

After Line 631 add the following new paragraph:

Applying what they know about natural systems and food production, students focus on strawberries, a major California crop, to learn about the interdependence of producers and consumers in the economic system. They investigate the relationship between food production and natural resources and learn that natural systems contain limited amounts of water and soil nutrients. Students make connections between farming and natural systems, such as the need to buy water, and the inability to change or control climate or weather. Reflecting on the interdependence of buyers (consumers) and sellers (producers) of goods and services, and how the limits on resources affect production and consumption, students build an understanding that continuation and health of individual human lives and of human communities and societies depend on the health of natural systems (California Environmental Principle I). (See Appendix D EEI Curriculum Unit *The Dollars and Sense of Food Production* 2.4.2.-2.4.3.)

After Line 635 add the following new paragraph:

Students examine maps of crops and climate zones in California to start building an understanding of food production and consumption long ago and today. Considering the roles of land and water resources and natural processes, such as climate and weather students explore how both influence farming and food production. Learning about jobs related to the production, processing, and distribution of present-day foods students recognize the economic influence of agriculture in California. Analyzing the connections between population growth, the production and consumption of agricultural goods, and changes in agricultural practices students reflect on how direct and indirect changes to natural systems and methods used to extract, harvest, transport and consume natural resources the geographic extent, composition, biological diversity, and viability of natural systems (California Environmental Principle II). (See Appendix D EEI Curriculum Unit *From Field to Table* 2.4.1.)

3rd-Grade Course Descriptions

After Line 750 add the following new paragraph:

Exploring maps of California students locate where they live and identify deserts, mountains, valleys, hills, coast and ocean, and lakes in their local region. Focusing on a California natural regions map and reader, students research the ecosystems found near them; the resources provided by these ecosystems; and, the ways that people use them. They investigate the ecosystem goods and services provided by these natural systems and how they are used to support human communities (California Environmental Principle I). As they analyze and reflect on the ways humans have changed natural systems by extracting, harvesting, transporting, and consuming natural resources, students deepen their understanding of how human activities have influenced the natural systems in their local region. (See Appendix D EEI Curriculum Unit *The Geography of Where We Live* 3.1.1.-3.1.2.)

After Line 767 add the following new paragraph:

Examining maps, students identify the region where they live and the local Indian tribes that live/lived in the area. Reading/listening to a description of the environmental characteristics of their region, students explore the natural habitats, and ecosystem goods and services available to California Indians in their region. Working with Tribal and Natural Regions maps, students describe ways in which physical geography, including climate, affected the natural resources upon which California Indian nations depended. Investigating the plants and animals used by local Indians, students explain how they adapted to their natural environment so that they could harvest, transport, and consume resources. As they analyze and reflect on these ecosystem goods and services and how they were managed (California Environmental Principle I), students recognize that California Indian cultural practices emphasized sustainable production of resources, even though their practices modified the natural environment. (See Appendix D EEI Curriculum Unit *California Indian People: Exploring Tribal Regions* 3.2.2.)

After Line 860 add the following new paragraph:

California's economy significantly depends on the availability of natural resources. Reading about some of California's major industries, students learn that the economy consists of many businesses that make and sell goods, and provide services and that people are paid for jobs related to these businesses. Investigating products grown, manufactured, and mined in California, students discover that other states and countries produce these same goods. The students focus on data from industries in the counties where they live by classifying jobs and major products. They begin to recognize that although the way these businesses' operations may have changed over time, most of them remain dependent on local natural resources. Applying what they know to local industries, students recognize that ecosystem goods and services are essential to human life and to the functioning of our economies (California Environmental Principle I). Completing cost-benefit analyses for a few California products students identify costs, including natural, capital, and human resources, as well as benefits, like jobs and income from selling products. Reflecting on what they have learned, students discuss how economic choices involve considerations ranging from human health to legal concerns and learn about the importance of considering the full spectrum of factors involved in making decisions about trade-offs in individual economic choices. (See Appendix D EEI Curriculum Unit *California's Economy: Natural Choices* 3.5.1.-3.5.2.-3.5.3.)

4th-Grade Course Descriptions

After Line 988 add the following new paragraph:

The diverse natural regions of California offer students opportunities to investigate the physical environments and features throughout the various regions of the state. These investigations focus on the natural resources provided by natural systems and how these resources are used to support human communities (California Environmental Principle I). Students explore landforms, bodies of water, climate, vegetation, and wildlife. They then examine how people use those resources in the regions where they live and compare where they live to other parts of the state. As they discuss and reflect on what they are learning they develop an understanding that human lives are influenced by the natural environment and that human activities affect the environment. As they research and analyze the past and present day real-world natural and human social interactions in various natural regions (e.g., oak woodlands, scrubland and chaparral, grasslands, rivers and lakes, and ocean and coast) they deepen their understanding of how human life and the functioning of our economies and cultures are dependent on healthy natural systems. (See Appendix D EEI Curriculum Unit *Reflections of Where We Live* 4.1.3.-4.1.5.)

In Line 992 add the following new paragraph:

Add the phrase “in mountain ranges,” after the phrase, “the coast,”

After Line 1001 add the following new paragraph:

Historical records illustrate California Indians’ understanding that healthy natural systems are essential to human life and to the functioning of economies and cultures (California Environmental Principle I). As students study California Indians they focus on the diversity of the natural regions where different California Tribal Nations lived, compare the different natural resources, and examine the land use patterns and economic activities in each region. They learn that effective resource management techniques sustained permanent settlements of several thousand people, and that trade facilitated distribution of many natural resources from California’s diverse environments. Students read legends from the early peoples of each region and identify the role of the natural world in California Indian mythology and belief systems. Considering controlled burning as example, students develop an understanding that quality, quantity, and reliability of the goods and ecosystem services provided by natural systems are directly affected by the management and health of natural systems. (See Appendix D EEI Curriculum Unit *California Indian People and Management of Natural Resources* 4.2.1.)

After Line 1034 add the following new paragraph:

The arrival of the Spanish, especially the Franciscan missionaries in California in 1769, catalyzed a change in the region’s economy, initiating a transition from a “hunter-gatherer” economy to an “agricultural” economy. Investigating this period in history from the perspective of how people used the land and its resources offers opportunities for students to analyze how changes in a region’s economy and human societies influence the long-term functioning and health of California’s natural systems (California Environmental Principle II). Students develop their own understanding of the transition from a hunter-gatherer to an agricultural economy by examining many of the changes implemented by the Franciscans including: formally structuring the lives and agricultural process at the mission; changing how people used the land; intensifying the use of natural resources and then analyzing data about crop production and livestock. (See Appendix D EEI Curriculum Unit *Cultivating California* 4.2.6.)

After Line 1102 add the following new paragraph:

Students use first-hand accounts, stories, illustrations, charts, and maps to learn about the early days of the Gold Rush and how individuals, government, business, and industry responded to increasing and often unanticipated effects of the Gold Rush. As students research this era they learn how the search for gold and the influx of settlers influenced the natural environment. Examining the development of new methods to extract, harvest, and transport gold allows students to see direct interactions between natural systems (e.g., consumption of natural resources, particularly large quantities of water and timber) and human social systems (California Environmental Principle II). The Gold Rush prompted California’s need for regional authority, as well as local decision making, to address these issues and formalize social, economic, political, and legal systems. Investigating the byproducts of the Gold Rush on local communities and the mining and extraction practices that influenced the health of the natural systems in

the surrounding areas (e.g., pollution of streams and rivers resulting from hydraulic mining and use of mercury in the refining) allows students to analyze how political and economic decisions were made during the Gold Rush and how they influenced natural and human social systems in local communities and throughout the region. (See Appendix D EEI Curriculum Unit *Witnessing the Gold Rush* 4.3.3.)

5th-Grade Course Descriptions

After Line 1489 add the following new paragraph:

Students apply what they learned about California Indians and the state's natural regions, in third and fourth-grade, to a study of the eastern seaboard's physical features. They learn about the locations of American Indian nations, original landing locations of the first colonists, and the geographic extent of the original 13 colonies. Using a variety of maps and historical information, they examine the role of natural systems, physical settings, and natural resources in the colonies. Investigating the natural resources (ecosystem goods and services) along the eastern seaboard, students identify the ways in which various resources made colonization and settlement possible, and begin to understand their role in the rise of resource-based economies in the 13 colonies. Focusing on ecosystem goods and ecosystem services, students learn how the natural resources in different areas influenced the types of economies and lifestyles that developed there. They reflect on the decisions that were made by American Indians and early colonists regarding the use and management of local natural systems (California Environmental Principle V). (See Appendix D EEI Curriculum Unit *Human Settlement and the Natural Regions of the Eastern Seaboard* 5.4.1.)

After Line 1840 add the following new paragraph:

Reading primary sources and using maps to locate overland trails, mountains, and rivers, students gain insight into how natural systems (terrain, rivers, vegetation, and climate) affected the travelers' experiences as they migrated across the country. Identifying the natural regions along the overland trails and analyzing the effects of weather, seasons, and climate, students understand the decisions settlers had to make when choosing which trail to follow and when to depart on their journey. They learn about how life at the end of the overland trails differed from the conditions in the eastern states. Students focus on the factors that led people to establish settlements in particular locations, primary among them the availability of natural resources. Students develop an understanding of the decisions the travelers made about every aspect of their future lives as they traveled West by analyzing every stage of their journeys, especially their ultimate decisions about where to build settlements. They learn that most of these decisions were based on the resources and natural systems encountered (California Environmental Principle V). (See Appendix D EEI Curriculum Unit *Nature and Newcomers* 5.8.4.)

Chapter 4: Course Descriptions for Grades Six Through Eight

Issues of Concern: the course description in Chapter 4 has very limited information about how teachers would integrate the Environmental Principles and Concepts with standard-specific content.

Proposed Resolutions:

The items below are the proposed additions associated to the Environmental Principles and Concepts and the EEI curriculum.

6th-Grade Course Descriptions

After Line 350 add the following new paragraph:

Reviewing a timeline of the Paleolithic period and reading about the distinct lifestyles of Early and Late Paleolithic peoples students learn that hunter-gatherer societies used tools and depended upon the goods and services obtained from ecosystem to meet their survival needs. Students analyze the development of early tools and the use of fire and discuss how Paleolithic people use them to harvest and consume resources and to take advantage of ecosystem services in the places they lived. Focusing on the relationship of using of tools and fire to the expansion and operation of hunter-gatherer societies students recognize the effects on the geographic extent, composition, biological diversity, and viability of natural systems (California Principle II). Where (See Appendix D EEI Curriculum Unit *Paleolithic People: Tools, Tasks, and Fire* 6.1.1.)

After Line 380 add the following new paragraph:

Students use maps to identify the locations of early human communities and the factors that influenced the migration and settlement that populated the major regions of the world. As they examine climate zone maps and learn about climate change during the Pleistocene (glacial and interglacial periods), students develop an understanding of the effects of climate on the Earth and on the expansion of human settlements. Based on their knowledge of physical geography and human needs, they analyze why humans migrated to and settled in particular locations as well as their migration routes. Comparing and contrasting the lifestyles, cultures, and the methods used to extract, harvest, and consume natural resources; students learn how early humans adapted to the natural systems and environmental cycles in different regions, and how these factors influence the settlement of human communities (California Environmental Principle III). (See Appendix D EEI Curriculum Unit *Paleolithic People: Adapting to Change* 6.1.2.)

After Line 415 add the following new paragraph:

By studying the physical and natural environment, students begin to understand how physical settings and related ecosystem goods and ecosystem services supported permanent settlement and early civilizations. Examining maps of ancient river valleys, students locate and describe the major river systems—the Nile and Tigris-Euphrates—and learn how the early civilizations of Mesopotamia, Egypt, and Kush took advantage of the resources available in and around these rivers of the Fertile Crescent. Focusing on the rivers' flood cycles and how the seasonal cycles of plants and animals depended on the river systems students develop an understanding that the rivers benefited humans and led to permanent settlements (California Environmental Principle III). Exploring the effects river systems had on early social, cultural, political, and economic patterns in Mesopotamia and Ancient Egypt students learn about the importance of the river systems to the development of early human civilizations. (See Appendix D EEI Curriculum Unit *River Systems and Ancient Peoples* 6.2.1.)

After Line 425 add the following new paragraph:

Using maps to study the beginnings of agricultural societies in Ancient Egypt and Mesopotamia, students learn about the development of early agricultural tools and their role in increasing food production. As they investigate the development of agricultural techniques students identify connections between natural systems and increased agricultural production. They learn that early farmers increased

the size of their farms and used more resources in order to increase their yield. Focusing on the relationships between resource requirements, agricultural production, and population growth, students learn that the population growth near agricultural areas was a first step in the development of larger settlements and cities. As they reflect on agricultural techniques that permitted the production of economic surplus and the emergence of cities as centers of culture and power, students develop an understanding of the influence of natural processes on these advances and the influences of these advances on natural systems (California Environmental Principle III). (See Appendix D EEI Curriculum Unit *Agricultural Advances in Ancient Civilizations* 6.2.2.)

After Line 443 add the following new paragraph:

Locating the kingdom of Kush on a map, students describe the Nile River system as a resource shared by the ancient Kush and Egyptians. Students learn how the unique natural resources in each kingdom supported or hindered the growth of their agricultural economies. Analyzing the economic, political, and religious systems students compare the similarities and differences in both kingdoms. Focusing on the interactions between Egypt and Kush over a period of 3,500 years, students identify the control of ecosystem goods and services and trade as the key to survival and success in this region. Tracing popular goods traded in the Egyptian world students describe their relationship to the natural resources available in Egypt and Kush. They learn about the influence of Egyptian trade on the development of laws, policies, and incentives on the use and management of ecosystem goods and services in the eastern Mediterranean and Nile Valley and how the long-term functioning and health of those ecosystems were influenced by their relationships with human societies (California Environmental Principle II). (See Appendix D EEI Curriculum Unit *Egypt and Kush: A Tale of Two Kingdoms* 6.2.6.-6.2.8.)

After Line 734 add the following new paragraph:

Using map resources, students locate and describe the physical features of the Indus and Ganges river systems in India and China's Huang He Valley. Investigating regional seasonal cycles, especially the summer monsoons, students provide examples of how these cycles benefitted the permanent settlement of early Indian civilizations. As students identify connections between rivers and the development of these societies, they learn about the importance of ecosystem goods and services to the early Indians and Chinese. They examine examples of factors that influenced the settlement of Indian communities and influences of the Huang He Valley on the development of the Shang Dynasty. Students learn that humans and human communities benefit from the dynamic nature of rivers and streams in ways that are essential to human life and to the functioning of our economies and cultures. This allows them to recognize that humans depend on, benefit from, and can alter the cycles that occur in the natural systems where they live (California Environmental Principle III). (See Appendix D EEI Curriculum Unit *The Rivers and Ancient Empires of China and India* 6.5.1.-6.6.1.)

7th-Grade Course Descriptions

After Line 1233 add the following new paragraph:

Examining the physical features of the Arabian Peninsula and the relationships among the components of the natural systems, students describe how improvements to farming practices increased supplies of food and other agricultural products. They explore the expansion of Arab trade outside the Arabian Peninsula and view the Arab world through the lens of commerce and trade of spices, foodstuffs, and textiles. Studying primary accounts, students learn how towns were settled and how the growing international trade affected human population and settlements across three continents. They learn that the expansion and operation of human communities, as well as the direct and indirect effects of the trade routes, significantly influenced the natural systems throughout the region (California Environmental Principle II). (See Appendix D EEI Curriculum Unit *Arabic Trade Networks: Growth and Expansion in the Middle Ages* 7.2.5.)

After Line 1303 add the following new paragraph:

Students research five important Chinese inventions of the Middle Ages (tea, the manufacture of paper, wood-block printing, the compass, and gunpowder), examine a map of China's natural regions, and identify the sources of raw materials used in each invention. Reading about how the inventions were made and used, they learn how people extracted or harvested resources and transported and assembled the resources into each invention, and, discover how Chinese inventions influenced the natural systems of medieval China. Continuing their research students trace the historic influence of these discoveries on human social systems and the effects of these inventions on world history. As students reflect on early Chinese discoveries, such as tea and gunpowder, and the processes involved in their production, they deepen their understanding that the that individual human lives and of human communities and societies depend on the health of the natural systems that provide essential goods and ecosystem services (California Environmental Principle I). (See Appendix D EEI Curriculum Unit *Genius Across the Centuries* 7.3.5.)

After Line 1488 add the following new paragraph:

Students identify natural resources important to medieval people and make a connection between feudalism and access to ecosystem goods and services. Reviewing a map of a medieval manor and analyzing excerpts from primary source materials, students describe how physical geography influenced feudal administrative positions and resource management. Students learn the importance of the medieval market in the political structure and economy by reading about the rise of the merchant class. Studying a map of trade routes students consider the relationship between trade routes, settlement of towns, growth of cities, and the effects of feudalism on the medieval European economy. As they analyze summaries of court cases that arose out of struggles over resource use and access students describe how feudalism's role in the economy of medieval Europe provided the foundation for the development of the political order. Reflecting on connections between feudalism and the environment, students develop an understanding that decisions affecting resources and natural systems are based on a wide range of considerations and decision-making processes (California Environmental Principle V). (See Appendix D EEI Curriculum Unit *Managing Nature's Bounty: Feudalism in Medieval Europe* 7.6.3.)

After Line 1579 add the following new paragraph:

Students examine maps to locate Mexico, Central America, and South America and review photographs and background information as they explore the roles of physical geography, climate, the availability of natural resources, and culture in the development of Maya, Aztec, and Inca urban societies. Focusing on a regional climate map and overview of the climates, students discuss how physical factors affected the urban societies and civilizations in these three regions. Further developing their mapping skills, students locate major ecosystems in Latin America and investigate the ecosystem goods and services that were essential to the people that lived there and were the basis for their economies and trading systems (California Environmental Principle I). Students learn how climate and types of ecosystems affected the economy, trade, and development of Maya, Aztec, and Inca urban societies by analyzing and comparing the diverse geography and natural history of Meso-America. (See Appendix D EEI Curriculum Unit *Sun Gods and Jaguar Kings* 7.7.1.)

After Line 1604 add the following new paragraph:

Students learn how the richness of natural resources and diverse ecosystems in Central and South America were the basis for the Aztec and Inca empires, as well as the reason for the Spanish exploration of the “New World.” They examine how the Aztec and Inca empires’ decision-making structures and processes were designed to maintain the richness of the resource base that allowed their empires to flourish (California Environmental Principle V). Students learn that the Spanish had the same need for the natural resources of the region, with a goal of sustaining their own economic and political systems in the “Old World.” They learn about the many human social factors including greed, religious fervor, and disease that left the Spanish in control of vast lands in Central and South America, eventually propelling the empire to expand into the lands to the north, California and beyond. Students ascertain how disease enabled the relatively tiny contingents of Spanish to conquer two of the largest and most sophisticated societies in human history. (See Appendix D EEI Curriculum Unit *Broken Jade and Tarnished Gold* 7.7.3.)

8th-Grade Course Descriptions

After Line 2118 add the following new paragraph:

Students learn about the ideals and aspirations of the people of the Early American Republic through a lens of demand for natural resources, a context for understanding the country's physical landscapes, political divisions, and the resulting pressures which led to territorial expansion. This approach challenges them to consider the complications involved in westward expansion and begin to recognize many consequences of that growth (California Environmental Principle II). They learn what happens as the country doubled in size at the same time the new nation was struggling with issues of debt and, simultaneously, political control of what appeared to many as nearly limitless natural resources. Students trace the development of federal land policy designed to manage the land and its resources and become aware of the political concerns during this time, which influenced the development of land ordinances. As they explore these laws and policies, students gain an understanding of the role government plays in the management of natural resources and examine how the expansion resulted in lasting effects to the country's physical landscapes and natural systems. (See Appendix D EEI Curriculum Unit *Land, Politics, and Expansion in the Early Republic* 8.4.1.)

In Line 2156, after the words "flow of immigrants to the United States" add the following text then add a paragraph break:

Students analyze case studies of two natural system events that were major reasons for the wave of immigration from Northern Europe to the United States, the "Great Irish Famine" and the "Year Without a Summer." They examine these cases to learn how natural systems influence human social systems (California Environmental Principle I) and the how these events influenced the numbers of Irish and Germans immigrating to the United States. Students read about the how and why of another major immigration event, large numbers of Basque people relocating from France and Spain to Argentina and then to the United States. They compare the Basques' search for an economic livelihood based on ecosystem goods and services with the immigration of Northern Europeans to the United States during the early to mid-19th century. Students discuss the factors that influenced where these new arrivals chose to settle, including whether and they sought out areas that replicated the natural systems or the human social systems they left behind in Europe. (See Appendix D EEI Curriculum Unit *America Grows* 8.6.3.)

In Line 2300, after the words "western regions." add the following text then add a paragraph break:

Students learn that as settlers began their westward journey in the 19th century, water played a vital role in determining the location of settlements. They participate in a role playing activity to explore the influence of rivers on development and settlement patterns, and discover that the management of this essential resource took on a different form than in the eastern states where supplies were adequate to meet demand. Students recognize that the limited availability of water in the West underscored many political, legal, and economic decisions about water management (California Environmental Principle V). By analyzing several case studies, students learn that "water wars" erupted between farmers, urban dwellers, and the American Indians who had relied on lakes and river ecosystems for thousands of years before European settlers arrived. They explore how political, economic, legal, and cultural factors affect decisions about water use, and learn how water management decisions created conflicts between various stakeholders in the West. (See Appendix D EEI Curriculum Unit *Struggles with Water* 8.8.4.)

In Line 2391, after the words "slowed by temporary periods of financial distress" add the following text then add a paragraph break:

Students identify and explore patterns of agricultural, industrial, and commercial development in the United States in the late 19th and early 20th centuries, and the effect of such development on the American environment. They learn through case studies of events, for example the Chicago World's Fair of 1893, and identify the "modern" agricultural, industrial, and commercial development of the time. Students describe the cause-and-effect relationships between climate, natural resources, population growth, and the scientific and technological advancements during this time period, and then apply their knowledge of these relationships to an analysis of the changing landscape in America around the turn of the century. Throughout the unit, students consider the effects of the operation and expansion of human communities and practices on the health and viability of natural systems (California Environmental

Principle II). They then apply their knowledge to an exploration of how increased mechanization and production in the late 19th century influenced the growth of American communities. (See Appendix D EEI Curriculum Unit *Agricultural and Industrial Development in the United States (1877–1914)* 8.12.1.)

After Line 2420 add the following new paragraph:

As a means of examining patterns of urbanization, immigration, and industrialization, students use historic maps to identify physical features of three American cities, building both their chronological and spatial analysis skills. Viewing the maps in chronological order allows the students to trace the growth patterns of cities and begin to recognize how a city's growth and industries demanded ever-increasing quantities of natural resources, gathered from increasingly greater distances. They then examine how industrialization correlated with urbanization and immigration, and consider how these synchronous processes affected the nation's natural systems. Students learn about how the combination of industrialization and urbanization related to the emergence of the American conservation movement. Then, by interpreting the origin and contents of some examples of landmark legislation, they have an opportunity to learn how science and technology played important roles in the beginning of the conservation movement. (See Appendix D EEI Curriculum Unit *Industrialization, Urbanization, and the Conservation Movement* 8.12.5.)

Chapter 5: Course Descriptions for Grades Nine Through Twelve

Issues of Concern: the course description in Chapter 5 has very limited information about how teachers would integrate the Environmental Principles and Concepts with standard-specific content.

Proposed Resolutions:

The items below are the proposed additions associated to the Environmental Principles and Concepts and the EEI curriculum.

10th-Grade Course Descriptions

After Line 723 add the following new paragraph:

Students learn that the industrializing nations, for example Great Britain, were confronted with a wide array of changes resulting from the Industrial Revolution. They determine that the rapidly growing population was putting great demands on the natural resources available to these countries, resulting for example, in a decreasing supply of wood, Great Britain's primary source of energy, as well as a major resource for buildings, ships, and tools (California Environmental Principle I). Students learn that Great Britain created a system of factory production and coal-powered machinery to resolve the energy shortage, setting the stage for it to become the wealthiest country in the world. Using graphs of population growth, cotton textile, iron, and coal production, as well as an array of primary sources leads students to an understanding of the relevance of natural resources, entrepreneurship, labor, and capital combined to the beginning of the Industrial Revolution. (See Appendix D EEI Curriculum Unit *Britain Solves a Problem and Creates the Industrial Revolution* 10.3.1.-10.3.5.)

In Line 749, after the words "throughout the world." add the following text then add a paragraph break:

Students learn about the relationship between the Industrial Revolution and the growth of urban centers which resulted in, depopulation of rural areas and migration to urban areas; a shift from agrarian-based society to manufacturing-based society; and a change in the pressures society places on natural resources. They learn through readings, lectures, and discussion and then by describing, comparing, and contrasting how these factors occurred in industrialized cities in England, Germany, Japan, France, and the United States. Students then work independently, in pairs, in collaborative groups, and as a whole class to determine that the demands of human populations and their consumption rates influence the geographic extent and viability of natural systems (California Environmental Principle II). Students work in groups and become "experts" on the development of one industrialized city (Manchester, England; Essen, Germany; Osaka, Japan; or Chicago, Illinois). They then examine problems that surfaced with the rise of these industrial cities—particularly changes to natural systems—and analyze business and government solutions to these problems. (See Appendix D EEI Curriculum Unit *Growth of Population, Cities, and Demands* 10.3.3.)

After Line 789 add the following new paragraph:

Students learn that as citizens of industrial nations adjusted to the conveniences these new technologies brought, demand for manufactured goods and better infrastructure grew at unprecedented levels. These growing demands resulted in the establishment of colonies in Africa, Asia, and Latin America which were tapped for their natural resources ultimately, influencing the long-term functioning of their major ecosystems (California Environmental Principle II). They examine how the desires of industrial nations to secure strategic advantage and ensure continued economic success often conflicted with the interests of European missionaries, scientists, and other explorers who also sought to use the abundant natural resources of the colonies. Students learn about the perspectives of both the colonizers and the colonized toward imperialism by examining case studies of the colonial experience in India and South Africa under British hegemony. They evaluate the era of New Imperialism and determine that the industrialized countries sought control over markets and natural resources in undeveloped lands to feed the factories of the Industrial Revolution. In India, for example, students explore the environmental and social effects of Britain's acquisition and control of the raw goods and markets, and in South Africa, where its wealth of gold and diamonds provided the capital needed for further industrialization. Students learn

how the competition for and decisions regarding natural resource acquisition and use influenced perspectives regarding the use of colonial lands and the nature of colonial rule (California Environmental Principle V). (See Appendix D EEI Curriculum Units *New Imperialism: The Search for Natural Resources* 10.4.1. and *The Control of India's and South Africa's Resources* 10.4.3.)

11th-Grade Course Descriptions

In Line 1643, after the words “as the assembly line.” add the following text then add a paragraph break:

The “Roaring Twenties” was an era in U.S. history marked by great prosperity, and for many Americans, access to a multitude of new inventions and better economic conditions that brought with them many changes in lifestyle. Students explore this era to understand the dynamics of economic change and its social, political, and environmental consequences using a graphic organizer that displays the growing trends toward mass production and mass consumption during the 1920s. They learn that with these changes came both intended and unforeseeable consequences, many resulting in social effects on people and impacts on the environments in which they lived (California Environmental Principle IV). Students discover that the development of, demand for, and use of these innovations both directly and indirectly influenced the country’s human communities and natural systems, and examine the environmental consequences of decisions made during this period. (See Appendix D EEI Curriculum Unit *Mass Production, Marketing, and Consumption in the Roaring Twenties* 11.5.7.)

After Line 1789 add the following new paragraph:

Students investigate the ways in which the economic boom and social transformation that occurred after World War II, resulted in significant changes to many industries, for example large-scale agriculture and energy production. They learn how the environmental regions of North America, with their diverse physical geography, provide the ecosystem goods and services that are essential to these industries. Students learn that humans’ industrial activities have influenced the functioning and health of natural systems in these regions as a result of the extraction, harvesting, manufacturing, transportation, and consumption of these goods and services (California Environmental Principle II). They learn about some of the economic, social, political, and environmental consequences of the major industries that boomed after World War II forming the foundation on which students build their understanding that knowledge and perceptions about environmental concerns has changed over time, in turn influencing local economies. (See Appendix D EEI Curriculum Unit *Postwar Industries and the Emerging Environmental Movement* 11.8.6.)

After Line 1880 add the following new paragraph:

The borderland between the United States and Mexico is a dynamic region in which cultures and political systems merge and environmental issues cross political boundaries. Students examine relations between the United States and Mexico by looking at key economic, political, and environmental issues, for example using a case study about the Tijuana River. They analyze maps and statistical data to help them learn how the economy and infrastructure in the border region influence the environment and the full range of relations between the United States and Mexico. Students analyze current cross-border programs and treaties between the two countries that are aimed at resolving some of the environmental issues in the border region. Using the management of natural resources in the region as a context for their studies builds their understanding of the spectrum of considerations that are involved with making decisions about resources and natural systems, and in this case, how those factors influence these international decisions (California Environmental Principle V). (See Appendix D EEI Curriculum Unit *The United States and Mexico: Working Together* 11.9.7.)

After Line 2011 add the following new paragraph:

Many students have visited parks, forests, and wildlife refuges but are not familiar with the development of environmental protection laws or the associated interactions between environmental protection advocates and property rights advocates. Few policy issues are more complex or controversial than those regarding use, management, and conservation of the nation’s resources and natural systems. Strong, deeply held views and competing interests shape human perceptions about these areas and influence management policies. Decisions related to managing environmental resources involve a wide range of considerations and decision-making processes (California Environmental Principle V). Examining case studies, such as the controversial expansion of Redwood National and State Parks in 1978 and oil drilling in the Arctic National Wildlife Refuge, helps students develop skill in analyzing complex and controversial issues. (See Appendix D EEI Curriculum Unit *Many Voices, Many Visions: Analyzing Contemporary Environmental Issues* 11.11.5.)

12th-Grade Course Descriptions Principles of American Democracy

In Line 2395, after the words “and town hall meetings.” add the following text then add a paragraph break:

Among the persistent issues facing the United States is how to balance individual rights and liberties with the common good in matters related to land, as well as water, air, and other natural resources. Students examine case studies that embody the struggle to find this balance and explore how private parties—individuals and businesses—consider the spectrum of factors that influence and negotiate policy decisions about natural resources and natural systems (California Environmental Principle V). Among these factors are laws, policies, financial incentives and interests, cost-benefit analyses, knowledge, commitment to individual rights and liberties, and interpretations of the common good. After discussing these factors, students consider the relationship between the environment, the common good, and potential conflicts with individual interests. They explore the concept of civic virtue—the individual’s willingness to put the public interest or common good above individual rights, liberties, and interests. Students learn that many conflicts over environmental issues result from competing perspectives involving individual rights and the common good, an illustrative example of the reciprocity between rights and obligations. (See Appendix D EEI Curriculum Unit *This Land Is Our Land* Principles of American Democracy 12.2.2.-12.2.5.)

In Line 241, after the words “associations can have in the U.S. government.” add the following text then add a paragraph break:

The management and protection of natural systems often involve a broad range of economic, social, and cultural factors. Policies governing land use, environmental hazards, and working conditions for laborers directly and meaningfully influence the daily lives of ordinary citizens. Studying debates over the use of the environment and natural resources provides a valuable opportunity for students to develop an understanding of and appreciation for the complex relationship between citizens and government in a diverse and democratic society. Debates over these policies illustrate how policymakers balance competing claims, needs, and viewpoints in a democracy characterized by an active civil society in which individuals and groups regularly draw on the full range of available lawful avenues to shape governmental decisions (California Environmental Principle V). Through a case study of the Upper Newport Bay, for example, students extend their understanding of the varied ways in which citizens make their voices heard, including methods that involve interaction with formal governmental processes and strategies that aim to educate and galvanize public opinion. (See Appendix D EEI Curriculum Unit *Active Voices: Civil Society and the Environment* Principles of American Democracy 12.3.2.)

After Line 2420 add the following new paragraph:

A major concern of many Americans since the mid-20th century, legislation related to pollution of air, land, and water exemplifies the complex lawmaking processes, responsibilities, and interplay among federal, state, and local governments. Students learn about the roles, responsibilities, and decision-making practices at each level of government as they work to identify, address, and mitigate environmental concerns (California Environmental Principle V). Looking at the designation and mitigation of hazardous waste sites in California provides a meaningful context within which to explore the powers, jurisdiction, and methods of the three levels of government. During this study, students also discover how federal and state agencies, tribal governments, and citizen groups influence the setting and implementation of public policy. (See Appendix D EEI Curriculum Unit *Making and Implementing Environmental Laws* Principles of American Democracy 12.7.6.)

12th-Grade Course Descriptions Economics

After Line 2924 add the following new paragraph:

Students analyze the long history of issues related to water ownership in California, for example, offering an opportunity to develop their understanding of the American system of private property ownership through a lens of renewable and nonrenewable resources. Allowing them to explore connections between individual property rights and societal decision-making, helps students recognize the wide spectrum of social, economic, political, and environmental factors related to the use and conservation of natural resources (California Environmental Principle V). Students recognize that many of these factors are considered when governments and communities make decisions about private property rights and the balancing of individual's self-interest and society as a whole. (See Appendix D EEI Curriculum Unit *Private Property and Resource Conservation Economics* 12.1.4.)

After Line 2963 add the following new paragraph:

As certain resources become increasingly scarce globally, the prices and availability of products and services in the global market are affected by and influence the local and national economy. Students learn about economic forces and our dependence on natural systems through an examination of the U.S. and international fishing industries. They recognize the relationship between the forces of supply and demand by examining how these economic forces work in the global fish market. Students apply what they know to investigate the influence of industry practices on valuable ocean resources and learned that the effects of human activities on natural systems are directly related to the quantities of resources consumed and to the quantity and characteristics of the resulting byproducts (California Environmental Principle IV). They learn about direct and indirect effects of supply, demand, byproducts, and increased competition for fish and examine regulatory measures currently being used in order to "sustain" both natural systems and the fishing industry for future generations. (See Appendix D EEI Curriculum Unit *Sustaining Economies and the Earth's Resources Economics* 12.2.2.-12.2.7.)

After Line 2997 add the following new paragraph:

Federal, state, and local governments have enacted a wide range of laws intended to protect the health of the environment, many implemented through fiscal policies (taxes, fines, and economic incentives), used to influence business decisions and practices that affect public health and the natural environment. Students learn about the externalities of modern production and consumption, and the interactions between economic policy and protection of the environment, allowing them to explore marginal costs, marginal benefits, and opportunity costs of government actions. This builds their knowledge about the considerations and processes involved in decisions related to the environment and natural resources (California Environmental Principle V). Students investigate the range of fiscal tools government uses to help protect the environment: establishing or managing markets, providing subsidies, imposing taxes, and using command and control policies. They consider the challenges faced by the government in enacting economic and environmental policies: the pressures to correct market failure and improve efficiency, and, at the same time, protect the health of the public and the environment. (See Appendix D EEI Curriculum Unit *Government and the Economy: An Environmental Perspective Economics* 12.3.1.)

Chapter 8: Instructional Strategies and Professional Development in History–Social Science

Issue of Concern: the sentence that starts on line 312 does not conform with the Environmental Principles and Concepts.

Proposed Resolutions:

Line 312 replace current sentence: “Human–environmental interaction refers to the many ways in which humans interact with and change the natural environment to meet their needs.”

Replace with: “Human–environmental interaction refers to the many ways in which humans interact with and change the natural environment to meet their needs and the effects of those human activities on the health and functioning of Earth’s natural systems.”

Chapter 9—Criteria for Evaluating Instructional Materials: K-8

Issue of Concern: Line 166 of subsection 16, the phrase “where appropriate and aligned to the history–social science content standards.” Can be interpreted in many different ways.

Proposed Resolutions:

Line 166 current phrase which starts: “where appropriate and aligned to the history–social science content standards.”

Replace with: “where appropriate and aligned to the history–social science content standards, as exemplified in Appendix XXX (to be developed).”

(Please note: this Appendix will be developed by CalRecycle with the assistance of Dr. Gerald Lieberman.)

Appendix D

Issues of Concern: Appendix D

1. Some of the lead in text is out of date, see individual issues and corrections below.
2. Suggest revising grade level sections to better identify the EEI units and related standards, see revised text below.

Proposed Resolutions:

Line 960 reads: "Education and the Environment"

Replace with: "Education and the Environment Initiative"

Lines 967-969 current subtitle information reads:

Environmental Principles and Concepts – December 12, 2004

Assembly Bill 1548 (Pavley, Chapter 665, Statutes of 2003)

Assembly Bill 1721 (Pavley, Chapter 581, Statutes of 2005)

After Line 969 add the following: "Environmental Principles and Concepts developed by the California Environmental Protection Agency and adopted by the SBE (Public Resources Code Section 71301)"

Lines 973-976 current text reads: "The environmental principles examine the interactions and interdependence of human societies and natural systems. The nature of these interactions is summarized in the environmental principles and concepts that are presented below."

Replace with: "The environmental principles examine the interactions and interdependence of human societies and natural systems. The nature of these interactions is summarized in the Environmental Principles and Concepts (EP&Cs) that are presented below."

Lines 1060-1065 current text reads: "The following supplemental instructional materials are available from the Education and the Environment Initiative, at the California Environmental Protection Agency Web site at <http://www.calepa.ca.gov/education/eei/>. Each unit is a standalone component that can be inserted into the instructional year to provide coverage of the given history–social science standard(s). Units are also available for specific science content standards."

Replace with: "The following instructional materials are available from the Education and the Environment Initiative, at the California Department of Resources Recycling and Recovery (CalRecycle) Web site at <http://www.californiaeei.org> Each unit was approved by the State Board of Education in 2010 to provide coverage of the identified history–social science standard(s). Units are also available for specific science content standards."

Lines 1067-1069 current text reads: "[Note: the curriculum units listed below are expected to go live on the CalEPA Web site by the spring of 2010. Currently, sample units are available for review at the EEI site referenced above.]

Replace with: "[Note: the curriculum units listed below are available at www.californiaeei.org]"

Table below Line 1070: all information from "Kindergarten" through the end of the appendix is incomplete.

Replace with: Information provided below:

Kindergarten Standards

K.4.5.

Demonstrate familiarity with the school's layout, environs, and the jobs people do there.

K.6.3.

Understand how people lived in earlier times and how their lives would be different today (e.g., getting water from a well, growing food, making clothing, having fun, forming organizations, living by rules and laws).

Unit Name and Description

Some Things Change and Some Things Stay the Same

Students see that the places we live in change over time, by first looking at their school and pictures of a school like theirs 100 years ago. Students compare and contrast the school, its surroundings, and the people of a “typical” California town 100 years ago, to their modern community. They become familiar with the idea that history relates to events, people, and places of other times. They also learn that the way history unfolds involves an ongoing interaction between people, their needs, and the resources that they use from their natural and physical environment.

First Grade

Standard

1.2.4.

Describe how location, weather, and physical environment affect the way people live, including the effects on their food, clothing, shelter, transportation, and recreation.

Unit Name and Description

People and Places

All lessons in this unit relate to locations in California to the physical and human characteristics of those places. Students learn human activities can change natural systems and how these changes can affect how people live. Information about two cities contrasts how people live in those places (looking at architecture, recreation, and jobs, for example). The unit provides an understanding of humans’ dependence on goods and services provided by natural systems.

Standard

1.4.2.

Study transportation methods of earlier days.

Unit Name and Description

On the Move

This unit focuses on transportation changes over time and how this brought about changes to communities. Students study photos and compare past and present transportation methods. Each lesson addresses differences in past and present transportation methods to help students learn how the methods of the past and present rely on ecosystem goods and ecosystem services provided by natural systems.

Second Grade

Standard

2.2.4.

Compare and contrast basic land use in urban, suburban, and rural environments in California.

Unit Name and Description

California Land Use – Then and Now

This unit focuses on land use patterns in California and how these patterns have changed over time. Also presented are basic concepts relating to the different types of land use in urban, suburban, and rural environments in California. Human influence on natural systems is addressed via community development and how the land is used for housing, transportation, agriculture, and recreation.

Standard

2.4.1.

Describe food production and consumption long ago and today, including the roles of farmers, processors, distributors, weather, and land and water resources.

Unit Name and Description

From Field to Table

Accompanied by a mini-newspaper and two grade-level readers, this unit teaches students about food production and consumption, both long ago and today. The roles of farmers, processors, distributors, weather, and land and water resources are introduced. Students also learn to recognize the relationship between human needs, components of the food production system, and the ecosystem goods and ecosystem services made available by natural systems. They study the ways that people have learned to use knowledge of natural systems to improve the quality, quantity, and reliability of food production.

Standards

2.4.2.

Understand the role and interdependence of buyers (consumers) and sellers (producers) of goods and services.

2.4.3.

Understand how limits on resources affect production and consumption (what to produce and what to consume).

Unit Name and Description

The Dollars and Sense of Food Production

Students apply what they know about natural systems, plant growth, and food production to solve a mystery about missing strawberries. As students work to solve the mystery, they review ways in which food production depends on the availability of natural resources and how such resources are limited. Students provide examples of how decisions about what to produce and what to consume can be affected by the quality, quantity, and reliability of the resources provided by natural systems. Students also develop a clearer understanding of the interdependence of consumers and producers.

Third Grade

Standards

3.1.1.

Identify geographical features in their local region (e.g., deserts, mountains, valleys, hills, coastal areas, oceans, lakes).

3.1.2.

Trace the ways in which people have used the resources of the local region and modified the physical environment (e.g., a dam constructed upstream changed a river or coastline).

Unit Name and Description

The Geography of Where We Live

This unit uses a series of wall maps to help students learn about their local region: the deserts, mountains, valleys, hills, coastal areas, oceans, and lakes. They identify the ecosystems (natural systems) that are found in their local region. The unit also explores the resources (ecosystem goods and ecosystem services) that are provided by the natural systems in their local region, and their uses. Students learn about the ways that people use the resources provided by the ecosystems where they live. Finally, they look at the ways humans have changed the natural systems in their local region.

Standard

3.2.2.

Discuss the ways in which physical geography, including climate, influenced how the local Indian nations adapted to their natural environment (e.g., how they obtained food, clothing, tools).

Unit Name and Description

California Indian People – Exploring Tribal Regions

This unit gives students and teachers tools to explore the interactions between the California Indian nations (peoples) and the components and processes of the natural system(s) in their local region. Using a series of wall maps and a grade-level reader, students identify their local region, the California Indians

that lived in and around their local region (and perhaps still do), and characteristics of the natural regions in which they lived. Then, students study the ecosystem goods and ecosystem services available to the local California Indians, the resources they came to depend upon from the natural system(s), methods they used to acquire such resources, and how they influenced the components and processes of the natural system(s) with which they interacted.

Standards

3.5.1.

Describe the ways in which local producers have used and are using natural resources, human resources, and capital resources to produce goods and services in the past and the present.

3.5.2.

Understand that some goods are made locally, some elsewhere in the United States, and some abroad.

3.5.3

Understand that individual economic choices involve trade-offs and the evaluation of benefits and costs.

Unit Name and Description

California's Economy – Natural Choices

This unit discusses the ways (past and present) in which local producers have used and are using natural resources, human resources, and capital resources to produce goods and services. Students study examples of the natural resources (ecosystem goods and ecosystem services) used by local producers. In addition, they learn to compare the costs and benefits of methods used by local producers to extract, harvest, transport, and consume natural resources. Students compare costs and benefits of producing goods—including food and other items—locally, as opposed to transporting them long distances.

Fourth Grade

Standards

4.1.3.

Identify the state capital and describe the various regions of California, including how their characteristics and physical environments (e.g., water, landforms, vegetation, climate) affect human activity.

4.1.5.

Use maps, charts, and pictures to describe how communities in California vary in land use, vegetation, wildlife, climate, population density, architecture, services, and transportation.

Unit Name and Description

Reflections of Where We Live

Lessons in this unit are tied together by the theme of “reflections”—that different aspects of human activity reflect the physical features of the environment in which they live. Students learn how human activities and structures reflect various aspects of the physical environment (water, landforms, vegetation, and climate), and that characteristics of regions in California are tied to human population density. Activities involve the study of maps, charts, and pictures to gather information about different geographic regions and related human population density, activities (including transportation), and structures (i.e., buildings). All lessons reinforce the concept that humans have learned to live in many locations and that how they live is shaped (or influenced), in part, by the environment.

Standard

4.2.1.

Discuss the major nations of California Indians, including their geographic distribution, economic activities, legends, and religious beliefs; and describe how they depended on, adapted to, and modified the physical environment by cultivation of land and use of sea resources.

Unit Name and Description

California Indian Peoples and Management of Natural Resources

This unit emphasizes modern-day California's natural diversity. At the time of European contact, California Indian nations managed this landscape to produce a myriad of resources. Intense land

management sustained communities that varied from seasonally moving extended families to permanent settlements of several thousand. The physical and social practices of California Indians emphasized productivity, sustainability, and renewal. Today, California Indians continue many of these traditions. In this unit, students compare the ecosystem goods and ecosystem services available to California Indian people of the past, their worldviews, how they used and managed resources, and examine how they established trade networks to access goods from far-off regions. Students learn how some of these practices continue to the present day.

Standard

4.2.6.

Discuss the role of the Franciscans in changing the economy of California from a hunter-gatherer economy to an agricultural economy.

Unit Name and Description

Cultivating California

This unit provides an environmental framework for discussing the role of the Franciscan missionaries in changing the economy of California. Students consider how people use land and resources as they discern the far-reaching influences of the state's economic transition from hunter-gatherer societies to agriculture. Students begin the unit by reading a story about Anaheim's transformation from farmland to amusement parks. They then turn their attention to the economic interplay between the California Indians and the Franciscan missionaries in pre-California.

Standard

4.3.3.

Analyze the effects of the Gold Rush on settlements, daily life, politics, and the physical environment (e.g., using biographies of John Sutter, Mariano Guadalupe Vallejo, Louise Clapp).

Unit Name and Description

Witnessing the Gold Rush

This unit provides a new perspective to what is often a favorite subject for teachers and students alike: the California Gold Rush. Students learn how the search for gold and the influx of settlers influenced the natural environment (rivers, forests, mountains, valleys), and placed great demands upon our state's natural and social resources. It also addresses how individuals, government, business, and industry responded to many of the continuing, and often unanticipated, effects of the Gold Rush on California's social, economic, political, and legal systems.

Fifth Grade

Standard

5.4.1.

Understand the influence of location and physical setting on the founding of the original 13 colonies, and identify on a map the locations of the colonies and of the American Indian nations already inhabiting these areas.

Unit Name and Description

Human Settlement and the Natural Regions of the Eastern Seaboard

Students explore the human settlement and natural features of the eastern seaboard, including the physical locations of the American Indian nations and the 13 colonies from the 1600s to 1763. Students act as "naturalists," recording examples of flora and fauna native to the eastern seaboard through excerpts from primary sources. Knowledge of the plants, animals, and the ocean services in the "New World" helps students understand what made the region attractive to Europeans and American Indians alike, and what made permanent settlement possible. The development of early economic systems in the Americas, particularly the staple crop economies, are discussed and the increased likelihood of European encroachment into lands occupied by American Indian nations is introduced.

Standard**5.8.4.**

Discuss the experiences of settlers on the overland trails to the West (e.g., location of the routes; purpose of the journeys; the influence of the terrain, rivers, vegetation, and climate; life in the territories at the end of these trails).

Unit Name and Description***Nature and Newcomers***

Through the perspective of the overland trail settlers in early American history, this unit teaches students to uncover connections between the natural environment (natural systems and resources) and the built environment (the ways that human beings attempt to influence the natural world). Students learn about the experiences of settlers on the trails and the factors that influence human beings when making decisions about natural resources, natural cycles, and natural processes. While investigating the physical landscape, vegetation, and climate of the major western overland trails, as well as the effects of natural cycles and processes upon the settlers, students understand the settlers' motivations for moving west.

Sixth Grade**Standard****6.1.1.**

Describe the hunter-gatherer societies, including the development of tools and the use of fire.

Unit Name and Description***Paleolithic People: Tools, Tasks, and Fire***

In this unit, students explore the essential characteristics of scavenger/hunter-gatherer societies, including the development of tools and the use of fire. Students read a story that sets the stage for exploration of ways in which humans, dating back to our earliest ancestors, have used and influenced the environment. The unit brings to light the prehistory of humans and introduces the interaction between human culture and the natural environment. This unique perspective provides students with a broader understanding of where we have come from and where we may be headed.

Standard**6.1.2.**

Identify the locations of human communities that populated the major regions of the world and describe how humans adapted to a variety of environments.

Unit Name and Description***Paleolithic People: Adapting to Change***

By identifying the locations of prehistoric human communities and providing examples of factors that influenced their settlements, students learn to compare the lifestyles of different Paleolithic cultures and the ecosystem goods and services upon which they depended. The unit highlights climate change as one of the factors influencing human migration within and out of Africa. In addition, students consider how their own behaviors and activities depend on the ecosystem goods and services available to them today.

Standard**6.2.1.**

Locate and describe the major river systems and discuss the physical settings that supported permanent settlement and early civilizations.

Unit Name and Description***Rivers Systems and Ancient Peoples***

This unit teaches students that the physical geography of certain areas positioned them to become the locations of the world's first cities. Further lessons detail the rise of agriculture and civilization. Students

learn to connect cycles, flow, and the role of rivers in ecosystems to the rise of the world's oldest cities in ancient Mesopotamia and Egypt.

Standard

6.2.2.

Trace the development of agricultural techniques that permitted the production of economic surplus and the emergence of cities as centers of culture and power.

Unit Name and Description

Agricultural Advances in Ancient Civilizations

This unit takes students on a journey from the earliest subsistence farms through the rise of ancient civilizations. By focusing on the effects of agricultural advancements, students learn about the importance of nature and natural cycles to the development of political, economic, religious, and social structures of the early civilizations of Mesopotamia, Egypt, and Kush. Students draw parallels between ancient and modern times by looking at the critical role of water. Although the unit focuses on ancient people, the problem-solving and critical thinking skills practiced throughout the unit are transferable skills that help students understand human reliance on natural resources in the present day.

Standards

6.2.6.

Describe the role of Egyptian trade in the eastern Mediterranean and Nile valley.

6.2.8.

Identify the location of the Kush civilization and describe its political, commercial, and cultural relations with Egypt.

Unit Name and Description

Egypt and Kush: A Tale of Two Kingdoms

Students learn about the complicated and interwoven histories of two ancient superpowers: Egypt and Kush. The unit begins with a present-day conflict that highlights the positives and perils of resource competition and consumption. Students learn about the unique geography of the Nile Valley region and its myriad of natural resources that supported extensive cultures and a vast network of trade. Students also explore the ways in which civilizations throughout time have sought to control their natural environment and how those efforts have influenced their natural world.

Standards

6.5.1.

Locate and describe the major river system and discuss the physical setting that supported the rise of this civilization.

6.6.1.

Locate and describe the origins of Chinese civilization in the Huang-He Valley during the Shang Dynasty.

Unit Name and Description

The Rivers and the Ancient Empires of China and India

Students apply what they know about river systems— their processes, characteristics, and their importance to human settlement—to an exploration of the civilizations that arose in ancient India and China. By emphasizing the physical and natural environment, students learn about geographic and climatic factors that contributed to the rise of great dynasties in both areas, and discover the dependence of the people on the ecosystem goods and services provided by the rivers. The lessons reinforce how physical characteristics of the regions fostered the beginning of settled life and the growth of sophisticated cultures and civilizations.

Seventh Grade

Standard

7.2.5.

Describe the growth of cities and the establishment of trade routes among Asia, Africa, and Europe, the products and inventions that traveled along these routes (e.g., spices, textiles, paper, steel, new crops), and the role of merchants in Arab society.

Unit Name and Description

Arabic Trade Networks: Growth and Expansions in the Middle Ages

Beginning with a look at the unique geographical features of the Arabian Peninsula, students explore the relationships between components of the natural system and the social systems of Arabia—specifically those related to trade and commerce. Students see that the growth and expansion of Arabic trade led to the growth and expansion of human populations and Medieval cities and towns along the trade routes. They learn about the diffusion of popular goods over this vast trade network and the devastating effect of the plague on Afroeurasia's natural and social systems.

Standard

7.3.5.

Trace the historic influence of such discoveries as tea, the manufacture of paper, woodblock printing, the compass, and gunpowder.

Unit Name and Description

Genius Across the Centuries

This unit explores the influence of selected Chinese inventions and discoveries on the natural and human systems of medieval China and traces the influence of those discoveries on the modern world. Students study about early Chinese experimentation with things found in the world around them, which produced useful goods and services. Students also discover how continued investigation led to innovations that influenced both society and natural systems. They learn how Chinese inventions have been disseminated into the modern world, influencing our production methods and consumption patterns.

Standard

7.6.3.

Understand the development of feudalism, its role in the medieval European economy, the way in which it was influenced by physical geography (the role of the manor and the growth of towns), and how feudal relationships provided the foundation of political order.

Unit Name and Description

Managing Nature's Bounty: Feudalism in Medieval Europe

The direct connection between feudal relationships and the environment is examined by demonstrating how feudalism served as a mechanism for controlling access to and the use of ecosystem goods and services in medieval Europe. Using a modern example, the formation of the California Department of Fish and Game, students learn about the complexities of managing natural resources in California today, before turning their attention to the foundations of resource management that arose feudal Europe. Students explore life on feudal manors and at feudal markets, analyzing the connections between the ecosystem goods and service available and the placement of towns. In the final lesson, students explore feudal law n regards to access to and the use of natural resources and what it meant to be an "outlaw" in medieval times.

Standard

7.7.1.

Study the locations, landforms, and climates of Mexico, Central America, and South America and their effects on Mayan, Aztec, and Incan economies, trade, and development of urban societies.

Unit Name and Description

Sun Gods and Jaguar Kings

This unit teaches students that the diverse geography and natural resources of Central and South America set the stage for the rise of the first urban societies in this part of the world —those of the Maya, Aztec, and Inca civilizations. Students learn how the distribution of resources affected the location, land-use patterns, and settlement of locations within these landscapes. The development of social and political

systems to control the production and flow of resources is discussed. These human systems and their interaction with the landscape set the stage for not only the growth of great civilizations, but for their eventual decline. Students recognize ways in which early Meso-American societies depended on goods and ecosystem services provided by natural systems.

Standard

7.7.3.

Explain how and where each empire arose and how the Aztec and Incan empires were defeated by the Spanish.

Unit Name and Description

Broken Jade and Tarnished Gold

Building on students' understanding of the diverse and resource-rich regions of Central and South America, this unit explores the rise and fall of the Aztec and Inca empires. The lessons highlight how cultural values created the empires the Spanish witnessed, as well as the ways that Spanish values and history shaped their decisions in the Americas. Students begin the unit by learning how empires manage both human and natural resources in order to concentrate wealth and power. The perspectives of each of the three empires on resource use is examined, and the role of disease on the Spanish conquest explored. Through this unit, students learn more than the facts related to the conquest; they understand how multiple factors, particularly decisions regarding the use of natural resources, shaped this critical era.

Eighth Grade

Standard

8.4.1.

Describe the country's physical landscapes, political divisions, and territorial expansion during the terms of the first four presidents.

Unit Name and Description

Land, Politics, and Expansion in the Early Republic

This unit teaches students about the physical landscape of the United States, political divisions, and territorial expansion during the terms of the first four U.S. presidents. Students also learn about factors associated with the use of natural resources, especially land, which led to expansion. Students deepen their understanding of what the promise those resources held meant to American Indians and citizens of the new republic during that time. Students also learn about the development of federal land policy and how the political concerns that existed during this time influenced the development of land ordinances. The influence of expansion on the country's physical landscapes and natural systems is also examined.

Standard

8.6.3.

List the reasons for the wave of immigration from Northern Europe to the United States and describe the growth in the number, size, and spatial arrangements of cities (e.g., Irish immigrants and the Great Irish Famine).

Unit Name and Description

America Grows

Focusing on immigration from Northern Europe to the United States during the first half of the 19th century, this unit explores human dependence upon ecosystem goods and ecosystem services provided by natural systems. Students gain an understanding of the interrelatedness of natural and human social systems—how changes in one set of systems trigger changes in the other. Specifically, students learn how natural systems influence human social systems and how their interactions forced large numbers of Irish and Germans to emigrate to America. The lessons also explore whether the nation's new citizens chose to settle in areas that replicated the natural systems, or the human social systems, that the immigrants had left behind in Europe.

Standard**8.8.4.**

Examine the importance of the great rivers and the struggle over water rights.

Unit Name and Description***Struggles Over Water***

This unit teaches students about the role that the great rivers and other fresh water resources played in the United States in the early 1800s (for example, the location of towns, farming, and ranching). The lessons describe the role of scientific and technological knowledge in the establishment of water rights and provide examples of the economic, political, legal, and cultural factors that influenced decisions about water. Students also learn how the great river systems and water rights influenced the development of the West. Students see that water use and management in the West, and other parts of the United States, continues to influence the economy, politics, and legal system today.

Standard**8.12.1.**

Trace patterns of agricultural and industrial development as they relate to climate, use of natural resources, markets, and trade and locate such development on a map.

Unit Name and Description***Agricultural and Industrial Development in the United States (1877-1914)***

This unit examines the influence of urbanization and renewed industrialization at the turn of the century on natural systems and in defining the course of the United States into the 20th century. Students begin the unit by “visiting” the 1893 World’s Fair in Chicago, “touring” the California building, and the new technologies on display. Students look carefully at the patterns of agricultural and industrial development in the East and West as they related to climate, natural resources, and availability of markets. They come to understand that technological advances influenced the growth of human populations and the establishment of commercial centers. Students also learn about political, economic, cultural, and environmental factors that affected technological advances in agriculture and industry during this time.

Standard**8.12.5.**

Examine the location and effects of urbanization, renewed immigration, and industrialization (e.g., the effects on social fabric of cities, wealth and economic opportunity, the conservation movement).

Unit Name and Description***Industrialization, Urbanization, and the Conservation Movement***

Students look closely at global economic imperative of the late 19th and early 20th century and its influence on the natural world through the development of the San Francisco Bay Area during this time. This examination unveils the connections between technological advances in the construction and planning of urban centers, the growth of population of those centers, and the eventual rise of a “conservation” movement. Key players in the American conservation movement—those who helped propel both public and political awareness of America’s need to preserve its natural systems—are highlighted, including John Muir.

Tenth Grade**Standards****10.3.1.**

Analyze why England was the first country to industrialize.

10.3.5.

Understand the connections among natural resources, entrepreneurship, labor, and capital in an industrial economy.

Unit Name and Description

Britain Solves a Problem and Creates an Industrial Revolution

In this unit, students analyze ways that natural resources, entrepreneurship, labor, and capital combined to produce key events and processes in the Industrial Revolution. Students examine England's transition from a subsistence agricultural economy through pre-industrial cottage industries and to finally industrial system. They explore the inventions that marked the development of the steam power, coal and iron, and cotton textile industries. Students discover how advancing mechanization improved the methods used to extract, harvest, transport, and produce material goods from natural resources.

Standard

10.3.3.

Describe the growth of population, rural to urban migration, and growth of cities associated with the Industrial Revolution.

Unit Name and Description

Growth of Population, Cities, and Demands

This unit teaches students about the relationship between the Industrial Revolution and the growth; of urban centers around the world. They study the concept of urban growth: depopulation of rural areas and migration to urban areas; the shift from an agrarian-based society to a manufacturing-based society; and they explore a change in demands for natural resources. Students examine problems that arose with the growth of the first "industrial" cities—particularly changes to natural systems—and analyze business and government solutions to these problems. They discover that the American standard of living is rooted in the Industrial Revolution, when consumerism emerged in the middle class and manufacturing replaced cottage industries and agrarian society.

Standard

10.4.1.

Describe the rise of industrial economies and their link to imperialism and colonialism (e.g., the role played by national security and strategic advantage; moral issues raised by the search for national hegemony, Social Darwinism, and the missionary impulse; material issues such as land, resources, and technology).

Unit Name and Description

New Imperialism: The Search for Natural Resources

In this unit, students investigate the decision-making processes used by industrializing nations in the mid-1800s, seeking raw materials and new markets for their growing economies. They compare disparate European beliefs about the use of natural resources and examine the government regulation that resulted from the management practices of the colonizers. Students consider how nature, once changed, presented new challenges to colonial administrators, forcing them to reshape their imperial projects more generally. Throughout the unit, students are engaged in thinking critically about human reliance on natural resources and the increasing global interdependence of the era of New Imperialism.

Standard

10.4.3.

Explain imperialism from the perspective of the colonizers and the colonized and the varied immediate and long-term responses by the people under colonial rule.

Unit Name and Description

New Imperialism: The Control of India's and South Africa's Resources

This unit focuses on colonial experiences in India and South Africa during British hegemony. Students learn how British and local people's decisions about natural resources changed as a result of the industrialization taking place in the Western world. They analyze a case study about how differing about the use of Mount Shasta's resources by local residents and outside interests. Students then examine colonial India, where they learn how British and local people's decisions regarding natural resources changed over the period of colonization and directly influenced local responses to imperialism. They

examine the complexities of colonial rule in South Africa, where the British competed with other Europeans for control of the region's gold and diamond mines. Finally, they identify key stakeholders in South Africa's development and learn the relationship between the control over natural resources and the emerging system of racial segregation.

Eleventh Grade

Standard

11.5.7.

Discuss the rise of mass production techniques, the growth of cities, the impact of new technologies (e.g., the automobile, electricity), and the resulting prosperity and effect on the American landscape.

Unit Name and Description

Mass Production, Marketing, and Consumption in the Roaring Twenties

Students explore the "Roaring Twenties" to understand the dynamics of economic change and its social, political, and environmental consequences. They examine the environmental consequences of decisions made—and not made—by industry, government, and individuals to learn about "unintended consequences" related to disposal of the waste and byproducts generated by the automobiles and other technological advancements that followed World War I. The last lesson challenges students to apply their knowledge by evaluating the pros and cons associated with plastic grocery bags, and they consider ways to prevent or remedy detrimental environmental outcomes.

Standard

11.8.6.

Discuss the diverse environmental regions of North America, their relationship to local economies, and the origins and prospects of environmental problems in those regions.

Unit Name and Description

Postwar Industries and the Emerging Environmental Movement

The unit examines the economic boom that followed World War II, especially in agriculture and energy industries, and it explores how technological changes after World War II resulted in increased demands for natural resources. Students explore some of the economic, social, and political consequences of growing resource demands and consider the effects on the environment across the United States. Students read a chapter from Rachel Carson's *Silent Spring* as the basis for examining the nation's changing perceptions about the environment and the resulting policy changes that governments implemented to mitigate environmental problems.

Standard

11.9.7.

Examine relations between the United States and Mexico in the twentieth century, including key economic, political, immigration, and environmental issues.

Unit Name and Description

The United States and Mexico – Working Together

This unit teaches students about treaties and agreements between the United States and Mexico related to environmental concerns. They examine the different ways the stakeholders balance decisions while analyzing cross boundary environmental issues. Students consider how population growth and density influence an area's natural resources and environmental health, how environmental factors permeate political boundaries, and how environmental issues influence the relationship between the countries. Students read about the Rio Grande and in a simulated conference, present perspectives of stakeholders concerned about water quality in the region. The final lesson focuses on the Tijuana River watershed and includes a class discussion of how actions in the rest of the border region influence U.S.–Mexico relations.

Standard**11.11.5.**

Trace the impact of, need for, and controversies associated with environmental conservation, expansion of the national park system, and the development of environmental protection laws, with particular attention to the interaction between environmental protection advocates and property rights advocates.

Unit Name and Description***Many Voices, Many Visions: Analyzing Contemporary Environmental Issues***

This unit uses a series of case studies to teach students about the wide range of considerations and decision making processes affecting natural resources management policies. Students develop skill in analyzing complex and controversial issues as they review expansion of Redwood National and State Parks in 1978, winter use of snowmobiles in Yellowstone National Park, and oil drilling in the Arctic National Wildlife Refuge. Each lesson approaches the complex nature of natural resource issues from a different vantage point, giving students the chance to use several different analytical skills and methods. Overall, the unit provides students with the knowledge and skills they need in order to evaluate future resource management issues.

Twelfth Grade: Principles of American Democracy**Standards****12.2.2. Principles of American Democracy**

Explain how economic rights are secured and their importance to the individual and to society (e.g., the right to acquire, use, transfer, and dispose of property; right to choose one's work; right to join or not join labor unions; copyright and patent).

12.2.5. Principles of American Democracy

Describe the reciprocity between rights and obligations; that is, why enjoyment of one's rights entails respect for the rights of others.

Unit Name and Description***This Land is Your Land***

Students explore California-specific case studies about laws, regulations, policies, and decision-making processes related to environmental decisions and individual rights. Students consider the "balance" between an individual's use and management of natural resources and the "common good." They explore the reciprocity between rights and obligations to ensure public health and safety. Students learn that such decisions are influenced by a spectrum of factors, including laws, policies, financial incentives, risk analyses, knowledge, and rights and responsibilities. Analysis of the history of the Sunshine Canyon Landfill is the basis for examining conflicts over environmental issues that result from competing perspectives.

Standard**12.3.2. Principles of American Democracy**

Explain how civil society makes it possible for people, individually or in association with others, to bring their influence to bear on government in ways other than voting and elections.

Unit Name and Description***Active Voices: Civil Society and the Natural Environment***

Students examine case studies related to how citizens have influenced governmental decisions related to environmental issues in ways other than voting. Using a set of California specific case studies, students examine how citizens voice their needs for social and environmental justice. They build an understanding of ways by which citizens make their voices heard, including methods that involve interaction with formal governmental processes and strategies that aim to educate and galvanize public opinion. Finally, students, analyze commonalities and differences among the unit's environmental case studies including differences in strategies that various stakeholders chose to implement.

Standard**12.7.6. Principles of American Democracy**

Compare the processes of lawmaking at each of the three levels of government, including the role of lobbying and the media.

Unit Name and Description**Making and Implementing Environmental Laws**

This unit examines lawmaking processes and roles of federal, state, and local governments related to environmental and public health. Students read about federal and state Superfund laws and Superfund sites in California as a means of comparing different levels of government. They explore the complex relationship between state, federal, and local governments in resolving environmental issues. The final lessons analyze California's Brownfields Program and explore California's Green Chemistry Initiative, and policy strategy for encouraging industry to use "green," rather than potentially toxic, materials.

Twelfth Grade: Economics**Standard****12.1.4. Economics**

Evaluate the role of private property as an incentive in conserving and improving scarce resources, including renewable and nonrenewable natural resources.

Unit Name and Description***Private Property and Resource Conservation***

Students explore economic issues as they relate to resource conservation. Students examine how Californians have dealt with water ownership in the 150 years since statehood. The unit focuses on the possible consequences of common ownership of resources including possible degradation and resource depletion. Students see how water in the state came to be defined as a public, not a private, good. They also learn about land trust and other incentives that encourage private property owners to care for their natural resources. At the end of the unit, students use what they have learned to research and analyze ownership and use of a resource in their community over time.

Standards**12.2.2. Economics**

Discuss the effects of changes in supply and/or demand on the relative scarcity, price, and quantity of particular products.

12.2.7. Economics

Analyze how domestic and international competition in a market economy affects goods and services produced and the quality, quantity, and price of those products.

Unit Name and Description**Sustaining Economies and the Earth's Resources**

Students study "sustainable economics," an economic system with a focus of sustaining ecosystem goods and services over a long period of time. By examining a case study about the U.S. and international fishing industries, they learn about economic forces and our dependence on natural systems. They analyze the relationship among supply, demand, scarcity, and price to learn about making informed decisions as consumers. In subsequent lessons, students apply their knowledge about ecosystem dynamics to an investigation about industry practices on ocean resources and marine ecosystems. The final lesson examines the function of regulatory measures in sustaining both the natural systems and the fishing industry for future generations.

Standard**12.3.1. Economics**

Understand how the role of government in a market economy often includes providing for national defense, addressing environmental concerns, defining and enforcing property rights, attempting to make markets more competitive, and protecting consumers' rights.

Unit Name and Description**Government and the Economy: An Environmental Perspective**

This unit focuses on understanding the role of government in a free-market economy from the perspective of addressing environmental concerns. Students examine the fiscal policies, incentives, and market forces governments use to influence business activities that affect the natural environment. Students consider the pros and cons of a new approach toward environmental protection—one that uses market mechanisms. Emissions trading (for example, cap and trade) gives businesses incentives to comply with environmental standards while also allowing them flexibility in compliance.